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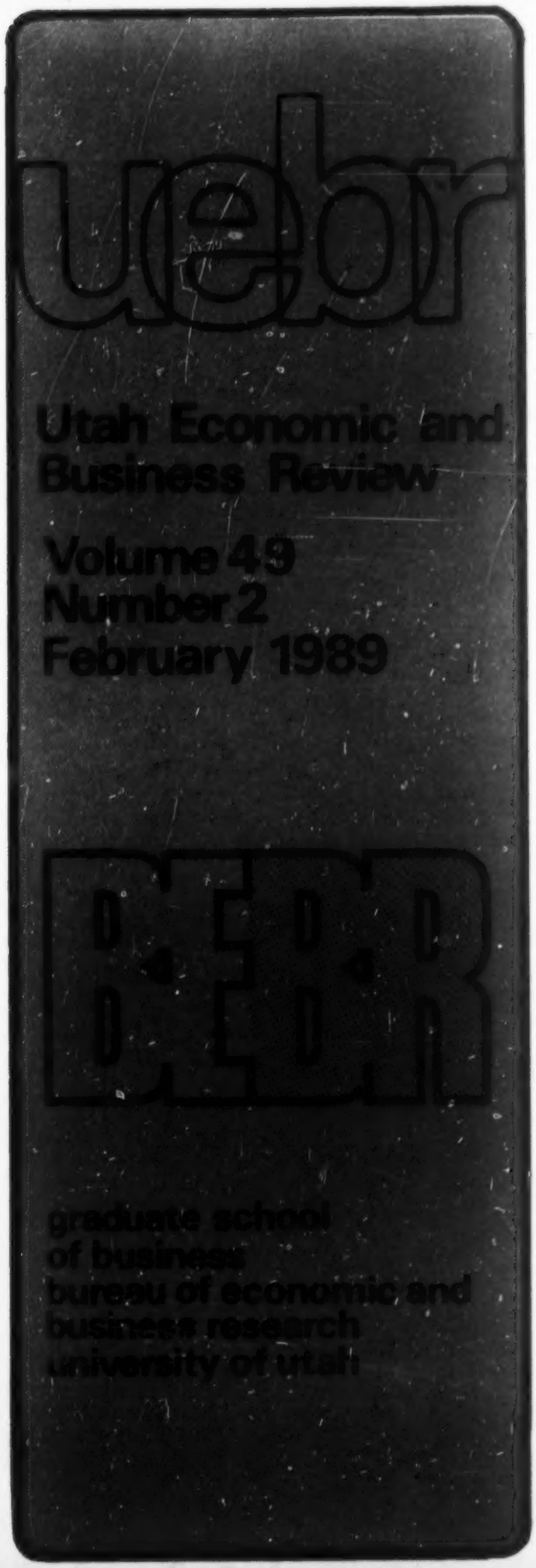

NOVELL, INC.

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Overview

Under the guidance of Raymond Noorda, Novell, Inc. in Provo, Utah has become an industry leader in the local area network (LAN) market.[1] Evolving from the fragments of Novell Data Systems, Inc., Novell designs, manufactures, markets, and services high performance LAN software, systems, and other connectivity products that enable personal computers to share resources (including communications devices, printers, and hard disk storage). Novell's LAN systems use NetWare, a proprietary software operating system.

In 1988, revenues increased from $182.8 million to $281.1 million, a growth of 54 percent. Software product sales comprise 60 percent of Novell's revenues. Overall, software sales account for an increasingly large portion of total revenues. The company's leading software product is NetWare, an operating system software program considered to be the de facto standard in the LAN market. In 1988, sales of all software products topped $168.6 million.

Employment gains match those of sales. Currently 1,600 people work for Novell. Approximately 1,000 people are employed in one of the company's two Utah facilities. Novell's non-Utah employment has increased significantly over the past two years with the acquisition of three non-Utah computer hardware and software companies.

Novell's Common Stock has been traded in the over-the-counter market, under the NASDAQ symbol "NOVL" since January 1985. As of December 1987, the company had slightly more than 27.7 million shares outstanding. Regarded as the pioneer of LANs, Novell leads the competition in terms of its worldwide installed user base (the number of people using a NetWare operating system).

By the end of 1988, more than 300,000 NetWare systems had been installed worldwide, representing approximately 3.0 million NetWare users. With more than 60 percent of the Fortune 5000 market and approximately 50 percent of the

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[1] A typical LAN system is an integrated family of hardware and software products consisting of five primary elements: (1) network servers (computers that manage the sharing of network resources); (2) network interface cards (components that physically connect PCs to the LAN); (3) the shared resources (items such as application software, hard disk subsystems, and printers); (4) network operating system software; and (5) the PCs that are used as workstations.

remaining PC LAN market, Novell controls the single largest portion of the PC LAN industry in the United States. Internationally, their market share is about 43 percent.

Novell's products are distributed through a diversified network of dealers, distributors, original equipment manufacturers (OEMs), value-added resellers (VARs), computer retail chains, and major end users. LAN technology is also provided to 35 OEM's that sell NetWare under their own brand name.

During 1988, sales made to distributors represented 48 percent of total sales. The U.S., Canada, Australia, and Europe are the major markets for the company's products. In 1988, export sales to foreign customers reached $90.9 million or roughly 32 percent of Novell's total revenues. Transactions with European countries accounted for a significant portion of this total (71 percent in 1988). Novell maintains foreign offices in West Germany, England, Hong Kong, Canada, Africa, and the Middle East.

Novell competes with companies that supply products for the PC LAN market including both software and hardware manufacturers. Two of Novell's most formidable competitors are International Business Machine Corporation (IBM) and 3Com Corporation.

Early History

Novell, Inc. was formed in 1983 from the pieces of Novell Data Systems, Inc. (NDSI), an Orem-based company that designed and manufactured computer workstations. NDSI was founded in 1979 by Jack Davis, Frank Richins, and George Canova.

Davis and Richins were business partners in Terminal Specialties, Inc., a small computer hardware distribution business. They wanted to move into what they perceived as the more lucrative manufacturing side of the computer market. To do this, a strong financial partner was needed so Davis contacted a former boss, and good friend, George Canova.

Davis convinced Canova that there was money to be made in hardware manufacturing, and after several meetings, Canova agreed to invest. Using the proceeds from the sale of his two companies, Canova became a co-founder and president of NDSI. Davis assumed control of sales and marketing activities. (Richins also invested in the venture but never assumed a management role.)

Although the founders invested heavily in NDSI, additional funds were soon needed. The capital came from a company called Safeguard Scientifics, Inc. (SSI), a quasi-investment firm based in Pennsylvania that invested in high-growth companies. Adolf Paier, the President and Chief Executive Officer of SSI, was another associate of Davis's and agreed to discuss the possibility of a venture investment.

It is not uncommon for fledgling firms to seek venture capital; however, NDSI's situation was unique. It had no working prototype, a condition that typically discourages venture firm participation. However, Davis was able to convince SSI's board that the idea was sound, and in 1980, in exchange for $2.5 million, SSI acquired a controlling interest in NDSI.

NDSI's Product

The original concept was a workstation system based on the Motorola 68000 microprocessor, that included several stand-alone "intelligent" terminals (the Novell UT100), a printer (the Novell Image 800 dot matrix printer), and a data management computer (the Novell N40). Together, these products formed the LAN. This LAN was a proprietary system that would allow NDSI computers to share resources for instance, the applications software from the dedicated file server. The development strategy was simple. The company hired a team of experts and assigned each one the task of designing a specific component of the system.

Rusty Woodbury, an engineer and acquaintance of Jack Davis, was hired to develop the terminal. Woodbury had previously designed terminals for Beehive Electronics. Phil Long was hired to write the software code that would allow the workstation and the printer to "talk" to each other. The specifications for the printer were purchased from TriTel, a California-based hardware manufacturer.

As development work progressed, the system designers realized that a distributive processing orientation would be more logical and easier to perfect, so development efforts moved toward the construction of a network that used a sophisticated software product to tie the individual components together. This software eventually became the backbone of the company's product line. Now, rather than constructing a stand alone workstation, the company focused its efforts on designing a network system using the workstation as a central processor with cabling connecting it to several terminals and printers. Software was the element that tied the system together.

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[3] SSI is not a venture investor in the traditional sense although it functions like one in many ways. The company spots fast-growing, small companies and invests in them, usually assuming a controlling interest. Limited management and administrative services are provided for a prearranged fee. When SSI feels the time is right, it allows shareholders of its own stock to purchase the newly acquired shares in a rights offering.

The networking concept was sound, but the developers underestimated the time and resources needed to design such a sophisticated system. After the decision was made to design a networking system, two separate development projects were initiated. First, design work began on the 68000-based file server that was to act as the network processor for the system. Second, the terminal workstation had to be refined.

Complications surfaced when the development team realized the existing software was not adequate to drive the system. A software consulting group, SuperSet, was hired to write a temporary program so NDSI could prove to its investors that the networking concept was feasible. Long planned to use SuperSet's program only until the investors were satisfied, then write a program of his own.

Deadline commitments made to investors were not being met, and SSI was pressuring NDSI's management to market a product. In an attempt to comply with investor's demands, NDSI began selling its untested network system at the end of 1980. Complaints began rolling in almost immediately. As Jim Bills, Executive Vice President of Novell's Systems and Services Group (NSSG), explains:

> *They did finish the product and it worked. The problem was the system was too expensive for what it did. You had a full-blown 68000 processor and at that time the technology was not cheap. You also got [sic] a terminal that was more than a terminal. It had a processor board, a memory board, a serial I-O board; it had four different boards. The terminal alone cost more than $13,000. It was the highest priced system in that class. It could be marketed, but it was a hard sell. If it would have been fast and would have had applications software that was sound, it would have been okay. The technology was right. The price was just too high.*

Integrating reliable applications software was another impediment to developing a viable system. With the exception of WordStar, a word processing program, software packages were not sophisticated enough to interact with the network. Often they would not run properly, and NDSI's engineers were forced to debug the system after it had been shipped. Unfortunately, no resources had been allocated for support functions, and most of the products were returned.

External Complications

IBM's decision to introduce a personal computer (PC) that utilized the MS-DOS architecture developed by MicroSoft Corporation further complicated the situation. NDSI's first system, as with all early LAN systems, allowed users to connect only those information processing devices that incorporated interfaces and software protocols on proprietary-based networks. Therefore, when a customer purchased a LAN product, he was tying himself to both the vendor and the vendor's products. By establishing a system that used the MS-DOS architecture, programmers could write applications software for one system, rather than for several different proprietary systems.

Although IBM's announcement legitimized the concept of PCs, it made NDSI's terminal obsolete. Ironically, the SuperSet group (still working for the company on a full-time consulting basis) had anticipated this move by IBM. Without NDSI's knowledge the group had designed an interface that allowed the IBM PC to connect with the 68000 processor. This product supported different operating systems that shared the same file server. (This product eventually became the focus of Novell's product line, but at the time it was developed, NDSI was in chaos, and SuperSet's product was ignored.)

Internal Difficulties

On top of the external challenges, the company was experiencing internal difficulties as well, namely, money and management. Workstation development had consumed the bulk of the company's resources. NDSI's management had been able to offset some of the administrative and operating costs by selling its printer as a stand-alone item. Unfortunately, this was a short-lived strategy. NDSI did not have an exclusive license to manufacture and market the printer. The design specifications had been sold by TryTel to NDSI, InfoScribe, and Fontel, Inc. While NDSI manufactured the printer based on the original specifications, Fontel and InfoScribe modified those specifications and ultimately designed a superior printer. By 1981, NDSI's printer was obsolete, and SSI's board was reluctant to commit further financial commitments.

Aside from the complexity of the development itself, the company was plagued by a series of poor management decisions. Every department head felt that he should dictate company strategy, and as one company executive indicated, "There were too many people at the top and not enough workers." Moreover, Davis overestimated the abilities of his people, and the time necessary to complete such a sophisticated product.

SSI Cleans House

With the marketing failure of NDSI's network system, SSI's board members realized they had misjudged the ability of NDSI's management team and decided to make changes. The board pressured Canova to fire Davis. In January 1981 Davis left the

firm and a new sales director was named. Within weeks the position of sales director was again vacant when the newly-named director died suddenly of a heart attack. In February, Canova and Long were both asked to leave the company, and by the spring of 1981, most of the top positions at NDSI were unoccupied.

Jack Messman, Executive Vice President of SSI, stepped in as NDSI's acting president. SuperSet assumed responsibility for software development, and the search began for a new management team.

David Guerro, an ambitious salesman running NDSI's California sales office, convinced Messman that he could turn the company around. Partly as a result of Messman's desire to relinquish the position, Guerro's credentials were never fully examined before he was named as NDSI's new president. It was not long before SSI realized that Guerro was not the right person for the job and the company floundered under his management.

Early in 1982, Guerro resigned and Messman again assumed the role of president, and employment was reduced to 30 people. SSI started selling off NDSI's equipment and began looking for a buyer.

Throughout Messman's tenure as president, staff reductions continued as SSI tried to sell the company. Several offers were made, but nothing legitimate materialized. Jack Davis finally provided SSI with an answer. Davis had left the company owning stock and with a vested interest in its success, he contacted Messman and recommended that he talk to Raymond Noorda.

Davis and Noorda knew each other from their years together at General Automation, Inc. Noorda, a native Utahn working for Boschert, Inc. in California, had established himself as a turnaround artist for failing firms. Through the grapevine, Davis learned that Noorda would consider moving back to Utah if the right opportunity were presented.

On the heels of a failed acquisition, SSI contacted Noorda in the fall of 1982 and offered him the NDSI presidency. Not only did Noorda accept, he purchased 28 percent of the company. Through strategic maneuvering, Novell, Inc. was formed and purchased all the intellectual property, assets, and liabilities of NDSI for 350,000 shares of Novell's preferred stock.[3] For $125,000 Noorda became part-owner of a company in financial turmoil, with a work force whose morale was at an all-time low, and a product that only a handful of people understood.

Novell, Inc.

The existing company, Novell, Inc. is very different from the one that preceded it. After continuous struggles, Novell has emerged as a major player in the networking industry. The components that had an influential role in achieving that position are discussed here.

The New President

Perhaps the single most significant factor in Novell's success has been Raymond Noorda. He brought to Novell a vision for the future, and more importantly, a plan to achieve that vision. One of his first challenges was to find a way to motivate the remaining employees given the company's financial constraints.

Motivating Employees

Reeling from Safeguard's efforts to sell the firm and three lay-offs that left only a skeleton crew, employee morale was sagging. The situation is explained by Judith Clarke, Senior Vice President of Corporate Communications:

> *There were just a dozen of us that were left after the big lay-off and we were just kind of pulling things together. We didn't know if we were going to have a paycheck next week or not, and then he [Noorda] came in and interviewed everybody. His technique is to use the resources that are available and do the best you can with what you have, and to build on that. You know, cull out anything that is wasteful and he did just that.*

Rather than bring a new management team with him to Novell, Noorda looked internally for his core group. He met with employees and assigned responsibilities according to his perceptions of each person's abilities---many of these people were later installed as officers in the company.

Financial constraints posed yet another difficulty. Without a profitable product line, and no source of revenue on the horizon, Noorda had to find a way to provide financial incentives that would not strain the company's budget. He did this by establishing a stock option plan that allowed employees to purchase Common Stock for an average price of $.05 per share.

Focusing Development Efforts

In prior years, the company headed off in too many directions; there was no nucleus around which

[3] At this point, SSI completely owned NDSI (which was technically a shell) and all of NDSI's property (including the 350,000 shares of Novell's Preferred Stock). Simultaneously, NDSI was merged into SSI, giving SSI a 50.2 percent controlling interest in Novell, Inc. These shares were converted to 4.9 million shares of Novell's Common Stock in 1984.

it could grow. Raymond Noorda provided this important leadership core. One of his first decisions was to focus Novell's product development efforts around NetWare (the company's stellar networking software).

This strategy has been a cornerstone of Novell's success. Under previous management, the development and product line had become too unwieldy and unmanageable. As Judith Clark explains:

> *Ray has the ability to bring focus to the problem. He is a simplifier, and he causes people to focus. He came here with a plan, saw what was valuable long-term, which was the networking software, and decided that it would be our product. The company used hardware as a tactic to position that product but the software was the one we developed. When the hardware is no longer needed anymore, then we won't use it.*

Realizing the potential of the software developed by SuperSet, Noorda extended the group's consulting contract and in exchange for all the rights to the software "shell" (which became the company's NetWare operating system) SuperSet received an aggregate of 665,000 shares of Novell Common Stock.

Novell's Product

NDSI's failed system became Novell's success story. NDSI's 68000 file server became Novell's 68B file server--the major sales component of the company's proprietary S-Net LAN System. Novell then converted the 68B's software to run on the 8086 and 80286 MS-DOS-based system. This shift in strategy permitted LANs based solely on PC technology, eliminating the need for a mainframe environment.

NDSI created a market for networking products in the late 1980s. NDSI's engineers had conceptualized and designed a product that was years ahead of its time, and when the proper management was put in place, the company's products skyrocketed. Under Noorda's guidance, the company redirected its development efforts to enhancing NetWare, although the company presently designs and markets several versions of NetWare, LANs that combine NetWare with LAN hardware, LAN communication products, and database retrieval products.[4]

At present Novell is the leader in the PC networking market in terms of installed user base and technical superiority. This success has not been easily won, nor is it the result of any single development strategy. Rather, it is the culmination of many strategies that straddle both business and product development.

NetWare Operating System

While most LAN manufacturers and developers focused on the hardware and communication protocols of LANs, Novell has taken a different route, concentrating its development efforts on producing a superior networking software product called NetWare. (A complete list of Novell's products and release dates is contained in Exhibit 1.)

"LAN hardware independence" was (and continues to be) one of NetWare's most impressive features. This independence makes NetWare compatible with a variety of networking hardware systems. Because NetWare utilizes Novell's proprietary file structure rather than the more limited PC-DOS format, it provides the user with a higher level of control, data integrity, and security than conventional DOS-based PC networks.

NetWare is implemented on a LAN by loading a software "shell" onto each PC on the network, and loading network management software on PCs that function as file servers. The shell coexists with, but does not alter, the basic operating system of the PC. The shell interprets the PCs request to access network resources, such as word processing and spreadsheet applications, and translates these requests into the NetWare format.

Since 1983, Novell has reconfigured its basic NetWare product to interact with all popular networking topologies, ranging from the Motorola 68000 to the Apple Macintosh line of computers. These reconfigurations have the same fundamental mode of operation: one dedicated PC acting as the "server" for all file sharing and printing functions.

The importance of NetWare as the company's flagship product has grown over the past six years. In 1983, Novell marketed NetWare exclusively with its proprietary LAN system NetWare/S-Net. However, within a year, the company had successfully modified NetWare and introduced a new version, NetWare 86, that supported the 8086/88 family of microprocessors used in IBM's personal computers, including the Intel 80286 microprocessor used in the IBM PC AT.

This new software was compatible with 11 different LAN configurations sold by companies such as 3Com, IBM, and Western Digital. During 1985, the company introduced Advanced NetWare as a replacement for the original NetWare operating system. A

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[4] In December 1988, Novell announced that it was phasing out its nonstrategic hardware products. Although the company does have a diverse software product line, NetWare is Novell's flagship product and is the only one discussed in this article.

Exhibit 1
Novell's Major Product Offerings

Product Group	1983	1984	1985	1986	1987	1988
Software	NetWare	NetWare/86	Advanced NetWare Advanced NetWare/68 Advanced NetWare/86 NetWare/268 Advanced NetWare/268	SFT NetWare/2.0 Level I SFT NetWare/2.0 Level II SFT NetWare/286	SFT NetWare/2.1 Advanced NetWare/2.0a ELS NetWare Level I	ELS NetWare Level II Advanced NetWare NetWare for VMS NetWare v2.11 NetWare v2.15 NetWare for OS2 NetWare for Macintosh SFT NetWare/286 v2.1
Local Area Network Systems	**Servers** NetWare/68	**Servers** NetWare/86	**Servers** NetWare/286	**Servers** NetWare/286A NetWare/286B NetWare/68B	**Servers** NetWare/386A	**Servers** NetWare/386AE
		Adapters OMNINET G-Net ARCnet	**Adapters** ProNet Ethernet+	**Adapters** RXNet	**Adapters** NE1000	**Adapters** NE2000 ARCnet/68 RXNet/2
		Storage Subsystems "Generic" Subsystem		**Storage Subsystems** NDS2 NDS4	**Storage Subsystems** Disk Coprocessor Board **Workstations** PCterminal	**Storage Subsystems** Disk Coprocessor Board/2
Communications Products		SNA Gateway NetWare Bridge		Message Handling Service Asynchronous Communications Service	Asynchronous Remote Bridge PCOX X.25 Remote Bridge PCOX SNA Gateway	Asynchronous Connection Service NetWare X.25 Gateway
Database Retrieval Products				NetWare/Btrieve	NetWare/SQL NetWare/XQL	NetWare Archive Server

Source: Compiled by the Bureau of Economic and Business Research.

brief description of Novell's principal NetWare products follows.

Advanced NetWare. This product supported multiple file servers and added internetworking capabilities. Users were able to access common files, print documents on one of several internetwork printers and send messages directly between individual workstations. The internetwork feature allowed users to access files on hard disks of other internetwork file servers.

System Fault Tolerance NetWare. In 1986, Novell introduced System Fault Tolerance (SFT) NetWare---the most powerful and sophisticated networking product on the market at that time. Sold in two levels, SFT NetWare provided an important feature in a LAN system, namely protection. While Advanced NetWare provided some data protection features, SFT expanded this level of protection. SFT NetWare Level I provided for disk media defect detection without disrupting normal workstation operations.

SFT NetWare Level II could run hard disk drives or complete servers in a "shadow" or mirror mode. Disk shadowing allowed SFT to duplicate, simultaneously, an entire physical volume on a second disk to prevent data loss in the event of a subsystem failure. If one drive failed or faltered, SFT Level II automatically reconstructed the data from the shadowed unit without halting the network.

Advanced NetWare Version 2.0a. This product offered several powerful features, including DOS 2.0 and higher compatibility, allowing mulituser software applications developed for DOS to run unmodified on NetWare; internal bridging, permitting up to four supported networks to bridge through one file server; NetBIOS emulation, allowing software applications written for IBM networks to run on any NetWare supported hardware; and universal operating system software interfaces, providing off-the-shelf operating system software for any supported hardware. Advanced NetWare v2.0a supported 41 different LAN configurations.

NetWare v2.15. One of the most impressive coups for Novell in 1988 was the release of NetWare v2.15 (NetWare for Macintosh). Introduced in June 1988, this product provided a means by which PC and Macintosh users could share files and data across a network. Each workstation continues to operate in its native environment so that users of Macintosh, IBM PC, and PS/2 workstations continue to operate in the environment they know while sharing files and data transparently across the network.

NetWare for VMS. In February 1988, Novell made its first leap into the Digital Equipment Corp. (DEC) arena with the announcement of NetWare for VMS, a high performance software product that allows PC users on a NetWare network to share data, print services, and applications with DEC's VAX computers.

The OS/2 Option. Early in 1987, IBM announced the introduction of Operating System/2 (OS/2), a second generation operating system for the 80286 and 80386-based microcomputers. OS/2 is a powerful and flexible operating system that removes the memory restrictions imposed by PC-DOS, operates in a protected mode, and allows multitasking. As a joint developer of OS/2, Microsoft Corporation, in conjunction with 3Com, Inc. immediately announced the development of a networking product for OS/2 called the LAN Manager.

In response, Novell announced that it would not license the MicroSoft LAN Manager, but would develop a networking solution for OS/2 using its flagship NetWare Operating System. The new product, Nondedicated NetWare for OS/2, allows NetWare (both SFT v2.1 and Advanced Netware v2.1) to run under OS/2 on a network file server. In addition, NetWare for OS/2 will support portions of the LAN Manager.

Entry Level Solution (ELS) NetWare, Levels I and II. The ELS NetWare Level I family of products was designed specifically for small business work groups and the first-time LAN user. Using a nondedicated 80286 file server, ELS Level I permits up to four simultaneous users and is relatively inexpensive. The introduction of ELS Level I was a strategic move for Novell. It was the company's first attempt to capture the low-end market. The strategy was to develop customer loyalty at an early stage by providing an inexpensive networking system. As the customer's networking needs expand, Novell provides an easy upgrade path with either ELS Level II, Advanced Netware, or SFT NetWare.

ELS Level II was introduced to the market in 1988 and is considered to be one of Novell's main product family groups. It is targeted for small remote offices with eight or fewer simultaneous users.

Future Releases

Remaining true to its software development commitment, Novell has embarked upon a Universal Network Architecture (UNA) strategy. The goal of UNA is to allow IBM and IBM-compatible, Apple Macintosh, and UNIX-based PCs and workstations to coexist on the same network, sharing access to network files, IBM mainframe and DEC VAX host computers. Novell also plans to provide connectivity capabilities between different LANs; between LANs, mainframes and minicomputer hosts; and between remote LANs and PCs.

Acquisitions and Joint Ventures

Buying expertise is one product development strategy that has been explored by Novell's management. Since October 1986, Novell has acquired three small computer companies: Santa Clara Systems, Inc. (1986); CXI, Inc. (1987); and SoftCraft, Inc. (1987). These acquisitions helped Novell enter new markets, and expand its product lines without incurring enormous costs.

Novell has entered into joint ventures with MICON-Interlan and British Telecom, Ltd. Novell and MICOM-Interlan have teamed up to develop NetWare TCP/IP Option, a product that allows users on TCP/IP networks to transfer files to and from Advanced NetWare 286 file servers and gives NetWare LAN users access to VAX/VMS and host UNIX.

The technology developed as a result of the joint venture with British Telecom Ltd. (electronic messaging X.400) will for the first time, provide worldwide electronic messaging capabilities for NetWare PC LAN users. This joint venture is of particular interest to Novell as the company is attempting to expand its NetWare presence in Europe.[5]

Essentially, Novell's acquisitions and joint ventures have expanded the company's product lines into areas where Novell had no previous expertise. By purchasing that expertise, in all cases for less than what it would have taken Novell to develop a similar product, the company avoids "reinventing the wheel." These new products are attractive to Fortune 1000 companies that need connectivity beyond PC-based work groups.

Marketing

"NetWare everywhere" is Novell's motto. To this end, the company has embarked on an aggressive, sophisticated sales and marketing program, utilizing an elaborate distribution system, extensive education and training programs, and expanded service and support functions.

Approximately one-third of Novell's labor force is involved in sales, marketing and customer support activities. The company aggressively markets its NetWare family of LAN products through a broad distribution channel that includes distributors, dealers, OEMs and value-added resellers. The sales and marketing efforts are conducted from Novell's headquarters in Provo, Utah, and to a lesser extent from 14 domestic and four foreign offices. The most recent sales and training facility was established in Salt Lake City, Utah.

In 1988, Novell announced that it was moving away from the hardware business and would try to convince former competitors to take another look at the NetWare System for possible integration with their own systems. This allows Novell to ally itself with major PC manufacturers such as DEC and IBM, a move that could give Novell access to the lucrative micro-to-mainframe connectivity market. For example, the PC networking market is estimated to reach $2 billion in 1988 compared to the $200 billion expected to be spent integrating micros, minis, and mainframes.[6]

Marketing Strategy

Novell's marketing strategy is a two-step process. The main thrust is to "grow the market" and then educate the users in that market. These two objectives are at the core of all Novell's marketing decisions.

Much of a company's success depends on the growth of the market in which it participates. Novell is no exception. The LAN market was virtually nonexistent ten years ago when Novell's predecessor (NDSI) began developing a system for distributive processing. When Novell was formed, Raymond Noorda committed to accomplish two goals. First, he had to convince people that networking was viable and valuable; second, he had to expand the market for LAN products by providing users with the hardware to utilize networking products.

Education. Even in Novell's early years, education played a significant role in its marketing endeavors. Judith Clarke explains those efforts:

> *In the early years, he [Noorda] especially emphasized the educational aspect of marketing the company's product. He personally went to companies, explaining and demonstrating the product, giving away software, and helping other companies develop compatible products.*

Currently, Novell actively promotes programs to inform the end user about Novell's products and then provides a forum where LAN manufacturers, customers, and vendors can learn more about the LAN market in general. Some of the most notable educational efforts include the publication of *LAN Times,* an educational grant program, and an annual trade show.

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[5] X.400 is the international standard that defines technical specifications for computer communications under the Open Systems Interconnection model (OSI). Novell must closely adhere to these standards in order to launch a successful sales campaign.

[6] *PC Week*, "Novell Abandons Hardware Business to Push Software," Vol. 5, No. 34 (August 22, 1988) p. 1.

The *LAN Times* was created in 1983 to inform Novell's customers about Novell's products. Published quarterly, it described the company's products and touched briefly on pressing market issues. Currently, the *Lan Times* is published monthly, and with over 50,000 subscribers, it is the most sophisticated and informative publication on the trends and issues facing LAN companies.

The Educational Grant Program was established to provide free operating systems software to colleges and universities. Depending on the number of students, an educational institution is eligible to receive several copies of NetWare to be used for instructional purposes or for research that has an instructional component.

Networld is a Novell-sponsored trade show held annually for LAN manufacturers, distributors, resellers, and end users. The show is designed to educate the market about LANs and to promote Novell's products.

Inexpensive hardware. Putting the proper tools in place has meant participating in the hardware market. Since its inception, the company has sold low-margin hardware (LAN components) as inexpensively as possible in its efforts to "grow the market." The rationale behind this strategy is explained by Jim Bills:

> *We put money into specific hardware in order to drive the cost of that hardware down in the market. Then we let someone else take it over. For us to succeed in selling our software, we have to get the cost of the workstation and all of its paraphernalia down. So we drive the market prices down more quickly than they [the competition] like.*

Aggressive Marketing

Novell's commitment to marketing cannot be understated. When the company felt its distributors were not marketing products aggressively enough, it formed NetWare Centers International (NCI), a wholly-owned sales and marketing subsidiary. An acquisition, Cache Data Systems, was the nucleus of the NetWare Center. Through its NCI subsidiary, Novell established offices worldwide for the express purpose of selling directly to end users placing orders in the range of $250,000 to $1 million. According to Craig Burton, Senior Vice President of Corporate Development, the strategy behind the establishment of these "LAN stores" was to "target accounts that its resellers have not been able to handle satisfactorily."[7]

[7] *PC Week*, "Novell Opens a Chain of Retail Centers to Sell LANs Directly to Users," (May 20, 1986) p. 148.

While Novell downplayed the direct sales component of NCI and focused on the service, support and training orientation of the new centers, distributors and resellers were wary and felt that the company was "skimming the cream."

By mid-1987, Novell had established 17 NetWare Centers worldwide; 13 domestic centers and four foreign offices with full product line inventory supplies at three of the centers and limited inventory at the remaining 14 centers. According to Jim Bills:

> *We were building up sales offices. Ray [Noorda] thought it would be quicker if we we formed a separate company, purchased some of our distributors and started a distribution company which we called NetWare Centers International (NCI). Novell sold to NCI, but it just didn't work. It was a business we weren't good at. It accomplished the goal of establishing a lot of offices quickly, but when we saw it wasn't working, we shut that company down. Now the centers are still out there but they are just sales and support offices for Novell, Inc. The original intent was to grow our presence in the marketplace, to teach our distributors to be aggressive.*

Financial Activities

The financial relationship between NDSI, SSI, and Novell, Inc. is a story unparalleled by the experiences of most high tech firms. Both NDSI and Novell, Inc. have been uncommonly successful in capital formation activities. Beginning with the first infusion of seed money from SSI and continuing through four public offerings, Novell has raised more than $120 million ($8 million came from SSI investments made over a three-year period beginning in 1980).

Public Offerings

Stock. Novell has gone to the market four times in the last five years. The first time was in 1985 when SSI sold its Novell stock in a rights offering. By January 1985, Novell was doing well financially, and SSI was determined to recoup part of its investment. Due to changes in the tax law any profits made on a Novell spin-off would have been assessed the equivalent of a double tax. To resolve this problem, the company came up with the rights offering concept.

Under this arrangement, shareholders of SSI stock had the right to purchase one share of Novell stock at a price of $2.50 for every two shares of SSI stock owned. SSI offered for sale 2,250,000 shares of stock with a 100,000 over-allotment option. Furthermore, SSI was the only shareholder able to offer stock for sale. Approximately $5 million was raised, and SSI's ownership position in Novell was diluted to 24.4

percent. Within a year, Novell's shares were bid up close to $20.

In 1986, Novell made its first stock offering to raise capital for the company. Under the terms of the 1986 prospectus, Novell offered for sale a total of 1.2 million shares at a purchase price of $17.15 per share. In this offering the company raised approximately $21 million.

After a two-for-one stock split in 1987, Novell participated in its third public offering for the sale of 2,150,000 shares of Common Stock for $21 per share. The company raised an additional $40 million, $15 million of which was used to pay off short-term bank indebtedness and liabilities. The remaining $25 million was added to working capital.

In 1988, Novell sold $52 million of 7¼ Convertible Subordinated Debentures in an underwritten public offering. The Debentures are convertible into Novell Common Stock after December 21, 1988 and on or before September 15, 2013 at a conversion price of $36.00 per share. Exhibit 2 tracks Novell's stock transactions since the initial public offering in 1985.

Sales

Novell has experienced explosive growth over the past five years. Sales have increased at a compound annual rate of 89 percent since 1983 when sales were less than $7 million. From 1987 to 1988 sales grew 54 percent from $182.8 million to $281.1 million. Pointing to the expected growth in the LAN market throughout the next five years, industry analysts are projecting that the company's sales revenues will reach $400 million by the end of 1989, Exhibit 3.

Exhibit 3
Novell, Inc.
Sales Growth, 1984 to 1988

	Total	Growth Rate
(numbers in thousands)		
1984	17,439	207%
1985	45,181	159%
1986	96,865	114%
1987	182,800	89%
1988	281,000	54%
1989p	400,000	42%

Source: Novell, Inc. interviews with Novell personnel and Annual Reports.

Exhibit 2
Novell, Inc.
Stock Trading Activity

1988

Quarter	High	Low	EPS
I	27	15¾	.19
II	24½	17½	.30
III	28¾	20¾	.39
IV	31¼	23½	.20

Average Shares Outstanding: 27,752,000

1987

Quarter	High	Low	EPS
I	18¾	10⅜	.17
II	25¼	16¾	.18
	Two for One Stock Split		
III	27	18	.20
IV	29¼	11½	.23

Average Shares Outstanding: 26,181,000

1986

Quarter	High	Low	EPS
I	10	6⅝	.10
II	10	7	.11
III	10⅝	8½	.11
IV	11⅞	8⅝	.16

Average Shares Outstanding: 24,941,000

1985

Quarter	High	Low	EPS
I	5	4¾	.07
II	7⅞	4½	.04
III	10¼	7¼	.06
IV	15¼	9¾	.07

Average Shares Outstanding: 23,145,000

Note: All stock transactions and ratios reflect the stock split.
Source: Calculated by the Bureau of Economic and Business Research using data obtained from Novell's Annual Reports.

Employment Profile

Novell, Inc. presently employs approximately 1,600 people. About 1,000 of these employees work at one of the two facilities located in Utah. The remaining 600 are employed at one of three out-of-state companies purchased by Novell within the past two years, or at sales offices located throughout the world, Exhibit 4.

Exhibit 4
Novell, Inc.
Employment Growth, 1984 to 1988

	Utah	Non-Utah	Total
1984[a]	10	0	10
1984	62	35	97
1985	194	42	236
1986	372	135	507
1987	620	538	1,158
1988	1,000	600	1,600

a Employment from January 1984 through October 1984.
Source: Personnel Department, Novell, Inc. 1988.

Since January 1984, Novell's employment growth has averaged more than 100 percent per year. Employment growth in Utah, while increasing significantly, has begun to slow in comparison with increases in non-Utah employment. Novell's recent acquisition of three domestic subsidiaries (CXI, Inc., and Santa Clara Systems in California; SoftCraft, Inc. in Texas) and the establishment of NetWare Centers in 21 states have resulted in rapid growth rates in employment outside the state. This trend may well continue as the company anticipates future growth in its direct sales and marketing areas.

With the exception of a few senior and support people involved in sales and marketing, such activities are undertaken outside of Utah (Novell's NetWare Center's operation is located in St. Louis, Missouri). Furthermore, the demand for increased support for the company's field offices and non-Utah locations may skew employment growth toward the non-Utah facilities. Employment growth in Utah will most likely occur in the product development-related areas.

Two major components of Novell's work force are administration and product development. All administrative functions are undertaken locally. Essentially all software development and development-related production activities are also conducted at the company's headquarters in Provo, Utah. This will continue to be the case, although the company has moved the bulk of its hardware development activity to its Santa Clara-based acquisition.

Technical employees (computer scientists, engineers, and technicians with at least a two-year degree) make up nearly 15 percent of the work force. In general, the company's professional engineering, software, and computer science positions are filled by engineers with graduate degrees. Technicians work in support positions for software engineering and quality assurance.

Administration and development account for 37 percent of the company's local employment. More than half of the Utah-based labor force has been hired from the local labor pool. The company recruits at local universities and colleges. Employee turnover at Novell has typically been below 5 percent.

Why Utah?

Novell Data Systems, Inc. was initially established in Utah because three of the founders (Jack Davis, Rusty Woodbury and Frank Richins) lived in the state and wanted to stay. However, over the years the company has had ample opportunity to leave, but Novell's management made the decision early on the keep the company in Utah. According to Graig Taylor, Novell's Director of Government Relations:

> *We think Utah is a darn good place to do business. Novell had the opportunity to move when we first formed from Novell Data Systems to Novell, Inc. Ray invited all the remaining employees in and said: "Where do we want to live when we grow up? Do you want to move to Salt Lake, or do we want to stay here in Provo? Do we want to go to Silicon Valley, or somewhere else; to the mountains, or someplace exotic?" So the location was really ours and the choice was conscientiously made to stay in Utah.*

Advantages

"People" are the most important factor in Novell's decision to remain in Utah. "The state has an abundant supply of labor and those people have a strong work ethic" was a sentiment expressed by many of Novell's top management. Furthermore, Novell's employees represent a dedicated work force that is willing to work hard for the company. To substantiate this claim, Novell's Human Resources Director, Bruce Hammond points to a turnover rate that averages less than 5 percent annually.

Another major advantage is the high quality of life offered in Utah. In addition to the recreational and cultural amenities, the state is perceived as a good place to raise a family.

Affordable housing for most of Novell's employees is also readily available. (This has not been the case for single, non-college, apartment-hunting employees.) Moreover, although some of Novell's non-Utah recruits initially expressed a hesitancy to relocate, once they get here they enjoy Utah's recreational and cultural offerings.

According to the company's CFO, Ron Eliason, "Costs (of doing business) are clearly lower, from the real estate and facility costs to the people costs." While many companies in the Los Angeles and Boston areas are paying high prices for land and office space, Utah offers both at a very reasonable price.

Limitations

Doing business in Utah also has its drawbacks. One of the greatest challenges facing Novell is finding enough high-level professionals with LAN experience to meet the demands imposed by its rapid growth. This is a multifaceted problem. First, there seems to be a severe shortage of high level managers in Utah. The entry-level technicians coming out of the universities are well-trained, but when it comes time to fill a mid-level or top management position, Novell (as well as other high tech companies) must recruit out-of-state.

Aggravating this situation is the fact that the company needs a very specific type of manager---one with LAN experience. In a field that is still in its infancy, such experience is difficult to find even in high tech areas and almost impossible to find in Utah. Enticing these individuals to the state poses yet another problem due to the number of technical employment alternatives. The technology job market in Utah is limited; whereas in Boston or Los Angeles, if a person is unhappy in one job there are five more waiting. In terms of employment, the predicament posed by Utah's isolation from major urban areas is summed up by Graig Taylor:

> *In Utah if something happens, either you don't like the job or the company doesn't like you, and you fall out of the nest, it is a long fall before someone catches you. On the other hand, in Los Angeles or Boston, that fall is very short.*

The perception that Utah is dominated by the LDS church also makes it difficult to recruit from outside the state. Utah's remoteness is another limitation. The state is far removed from other high tech and financial regions. This makes it difficult for Novell to get coverage from the financial world, or for the state to develop a core of technology companies that would alleviate some of the employment problems. Marketing and training activities have also been hampered. To counteract this, Novell has established training facilities throughout the world.

Conclusions

Novell's present success is the culmination of many smaller successes that occurred both before and after the company's organization in 1983. It is a study of Jack Davis (entrepreneur/promoter) and Raymond Noorda (entrepreneur/manager).

Jack Davis very successfully sold his abilities, his idea, and his team. This capability helped him raise the capital to develop the software product for which Novell has become acclaimed. Another success was the ability of the early company to design and manufacture a complex system on a shoestring budget.

Amid all discussions of Novell's success, one question remains: "Why was NDSI unable to become a Novell?" There is really no single answer. Rather, NDSI's failure followed a series of events that in some cases were beyond the founders' control.

Overselling the group's abilities and underestimating the time required to develop the networking system were two of the foremost problems. Davis, a remarkable promoter, convinced Safeguard to finance his fledgling company. In return, he promised to deliver a highly technical product within a short period of time. At one point, NDSI had three major development efforts ongoing. Conflicts and ego clashes between development leaders caused rifts throughout the company. These conflicts eventually created an "underground" at the company headed by the SuperSet consulting group. George Canova, NDSI's president, could not provide the leadership necessary to move the NDSI's team development efforts in the same direction. Each group had its own hidden agenda. As Jim Bills explained:

> *NDSI had too many people running the company on questionable credentials. Davis promoted this company as a group of experts...and the chiefs had more ego than substance. George Canova had good business sense, but I don't think anybody else in a leadership position had a good sense of business. Although a few people understood the value of SuperSet's software, they did not have the authority to do anything about it.*

As a result, by the time the software was developed, NDSI had missed its window of opportunity. Competitors were manufacturing and selling a better model of NDSI's printer at a lower cost. The rest of the system was too sophisticated and expensive for what the average customer needed.

Another contributing factor was the nature of the investing company. A typical venture firm realizes that investments in high tech companies are long term investments. SSI, on the other hand, was not a patient investor and although SSI's money was important to the fledgling firm, it may not have been

the best partner for the company. SSI (partly due to Davis' promotional efforts) expected to recoup its investment in a relatively short period of time. When these expectations were not met, the solution was to change management. Consequently, NDSI was without leadership for much of its early life. The investment mindset of SSI resulted in NDSI's shipping an untested product--a situation that proved to be a fatal blow when products were returned and sales stopped.

Since 1983, Raymond Noorda has been the driving force behind Novell. Focus, experience, and motivation are the key components in his strategy of turning Novell into a multi-million dollar organization. He decided that Novell would be a software company, and every activity from that point on was focused toward the achievement of that objective.

Using his managerial expertise and the productive components of NDSI, he brought focus and direction to Novell. Where NDSI's leadership was unable to define the product or the market for that product, Noorda developed a business strategy that was broader than simply the development and distribution of product. He understood the importance of marketing a fully-developed product to an audience that understood that product. Instead of three or four unrelated development projects, Novell's research and development efforts centered on the enhancement of NetWare--the operating system software product now considered the de facto standard in the networking market.

Noorda's technical background combined with managerial experience has enabled him to anticipate trends in the networking market and to move his company in the proper direction to meet the demands of the market quickly and effectively. This has required several major corporate reorganizations (the most recent stemming from the decision to phase-out the hardware component of Novell's product line). Finally, and perhaps most importantly, Noorda brought with him a vision of Novell's potential. As a leader, he conveyed that vision to his people earning their dedication and loyalty. Starting with 15 people in 1983, he has "grown" a group of 1,600 competent, motivated employees.

Noorda's efforts and strategies have paid off. Today, Novell is acclaimed as the pioneer of the LAN market. With more than 60 percent of the U.S. networking market and sales in 1988 of $281 million, it is the largest independent provider of networking products in the country. Much of Novell's explosive growth has come from sales of NetWare software.

This segment accounted for 60 percent of the company's revenues in 1988, up from 43 percent in 1987. Software sales are highly profitable for Novell and will continue to account for the fastest growing portion of the company's business. This trend will accelerate as Novell phases out most of its hardware products. As a software company, Novell can work profitably with LAN hardware companies that previously viewed Novell as a competitor.

This success will not be easy to maintain. The market for networking has grown dramatically over the course of the past five years. The sheer growth of the market has put severe pressure on the management structures of every major LAN company. In the wake of this growth, competition has become fierce and the technological requirements enormous. Though NetWare is an eighth generation product, other companies are developing products that will match NetWare's capabilities.

One of the darkest threats to Novell's market share is the joint venture between 3Com Corporation and MicroSoft, Inc. to develop the LAN Manager---a software product that has been hailed as a direct competitor for Novell's NetWare. Technologically, networking is becoming more demanding, especially in multivendor support (the ability for one operating system product to simultaneously network diverse hardware components).

Essentially, the networking market is maturing, and a mature market is unforgiving. Mistakes that are easily rectified in a young market can mean death in a mature one. Moreover, as this maturation proceeds, the demands of the market will take on a different character. For example customer support is playing a larger role in the choice of LAN products. This, combined with the demand for multivendor support, will eventually put smaller LAN companies out of business.

Will Novell survive these changes? Experts in the LAN market claim that Novell will always be on the networking scene. Novell is a company that has built the networking market from the ground floor. Novell has shown a remarkable capacity to assimilate market changes, and to move the market in a favorable direction.

Utah Business Statistics

UTAH DATA	Nov. 1987	Nov. 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Total Personal Income (seasonally adjusted) (mil. of dol.) (qtly.)	19,603	21,116	7.7%	20,189	18,914	6.7%
New Corporations (no.)	397	415	4.5%	454	464	-2.3%
New Car, Truck and Motor Home Sales (no.)	4,632	4,750	2.5%	5,213	5,028	3.7%
Agriculture						
Average Prices Recorded by Farmers (dol.)						
Beef Steers and Heifers (cwt) (thous.)	64.00	68.20	6.6%	67.56	63.08	7.1%
Lambs (cwt)	68.80	62.30	-9.4%	64.29	72.45	-11.3%
Milk Wholesale (cwt)	12.20	12.60	3.3%	11.59	11.98	-3.2%
Alfalfa Hay, Baled (per ton)	70.00	77.00	10.0%	75.00	66.75	12.4%
Cattle Slaughtered (live weight) (thous. of lbs.)	39,962	43,069	7.8%	46,479	41,451	12.1%
Construction						
Total Construction (thous. of dol.) 1	66,260	98,333	48.4%	120,669	117,219	2.9%
Residential	32,089	51,433	60.2%	47,332	49,635	-4.6%
Nonresidential	22,441	27,527	22.7%	41,723	39,144	6.6%
Public Works and Utilities	11,720	19,373	65.3%	31,650	28,440	11.3%
Total Permit Construction (thous. of dol.) 2	90,238.9	59,117.1	-34.5%	70,500.0	94,776.7	-25.6%
Residential	29,109.2	28,313.2	-2.7%	34,427.5	42,735.0	-19.4%
Nonresidential	48,988.1	21,999.3	-55.1%	22,925.0	38,148.7	-39.9%
Additions, Alterations and Repairs	12,130.6	8,804.6	-27.4%	13,147.5	13,893.0	-5.4%
New Dwelling Units (no.)	413	388	-6.1%	475	641	-25.9%
Employment						
Civilian Labor Force (thous.)	787.3	782.4	-3.3%	757.2	756.3	0.1%
Total Employed Persons	715.1	744.0	4.0%	718.9	708.3	1.5%
Unemployed Persons	42.2	38.4	-9.0%	38.3	48.1	-20.4%
Percent Total Labor Force	5.6	4.9	-12.5%	5.1	6.4	-20.5%
Employees on Nonagricultural Payrolls (thous. of jobs)	653.9	676.8	3.5%	654.2	639.5	2.3%
Manufacturing	96.2	100.2	4.2%	96.8	92.0	5.2%
Mining	8.4	8.0	-4.8%	8.3	8.0	4.0%
Contract Construction	26.5	26.5	0.0%	24.4	27.1	-10.0%
Transportation, Communication and Utilities	38.8	40.7	4.9%	39.1	37.8	3.5%
Wholesale Trade	34.7	35.1	1.2%	34.6	35.0	-1.1%
Retail Trade	121.4	125.3	3.2%	119.2	117.9	1.1%
Finance, Insurance and Real Estate	33.4	32.9	-1.5%	33.5	33.7	-0.5%
Services 3	150.9	162.3	7.6%	156.2	146.1	6.9%
Federal Government	39.0	39.4	1.0%	39.5	39.9	-1.1%
State Government 4	39.2	39.5	0.8%	36.5	38.0	-3.8%
Local Government 4	65.4	66.9	2.3%	64.7	63.8	1.3%
Average Weekly Hours						
Manufacturing	41.9	41.2	-0.7%	40.6	39.5	2.8%
Mining	40.8	39.4	-3.4%	42.7	41.2	3.7%
Wholesale Trade	38.4	36.7	-4.4%	37.7	38.0	-0.8%
Retail Trade	27.7	27.8	0.4%	28.1	28.1	0.3%
Amount of Unemployment Compensation (Thous. of dol.)	4,097.0	4,022.4	-1.6%	5,949.1	8,069.2	-26.3%
Finance						
Savings, Savings and Loan Association (mil. of dol.)	2,475.9	2,376.9	-4.0%	2,343.4	2,452.8	-4.4%
Tax Collections by the State of Utah (thous. of dol.)						
Total Tax Collections	272,882.3	259,545.4	-4.9%	146,489.8	138,260.7	6.0%
Sales and Use Tax	131,810.9	130,980.2	-0.6%	53,142.6	47,674.3	11.5%
Motor Fuel Tax	9,748.5	10,856.8	11.4%	11,027.0	9,252.7	19.2%
Individual Income Tax	81,297.9	65,492.4	-19.4%	52,536.4	48,516.9	8.3%
Corporation Franchise Tax	835.4	(122.7)	-114.7%	5,885.3	6,274.4	-6.2%
Production						
Net Electric Power Utilized (mil. of kwh)	1,138.0	1,267.2	11.4%	1,247.8	1,151.5	8.4%
Crude Oil to Refineries (thous. of bbls.)	3,932.5	4,400.2	11.3%	4,219.0	3,807.0	10.8%
Crude Oil (thous. of bbls.)	2,859.7	2,567.6	-10.2%	2,783.8	2,974.1	-6.4%
Natural Gas (mil. of cu. ft.)	24,208.9	23,883.8	-1.3%	23,066.9	21,525.5	7.2%
Coal (thous. short tons)	1,513.0	1,478.0	-2.3%	1,508.0	1,191.4	26.6%
Tourism/Travel						
Air Passengers (total no. on and off) (S.L. Int'l Airport)	725,569	765,585	5.8%	864,979	843,839	2.5%
Highway Traffic Count Across State Lines	32,080	34,597	7.8%	NA	38,062	NA
Transient Room Taxes (thous. of dol.)	1,861.8	1,683.7	-9.6%	548.9	520.4	5.5%
Visits, State, Nat'l. Parks, Monuments (thous.)	359.9	391.8	8.9%	1,104.2	1,061.0	4.1%
Utilities						
Telephone Lines in Service (Mt. Bell) (Residential)	484,272	493,200	1.8%	487,856	479,314	1.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	177,709	183,298	3.1%	180,583	175,315	3.0%
Electric Customers (Residential)	474,256	479,042	1.0%	476,318	472,427	0.8%
Electric Customers (Commercial)	46,171	47,097	2.0%	46,768	46,209	1.2%
Natural Gas Customers (Residential & Commercial)	448,067	460,115	2.7%	458,321	445,808	2.8%
Natural Gas Customers (Industrial)	550	558	1.5%	549	555	-1.1%

Utah Business Statistics

UTAH DATA	Nov. 1987	Nov. 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Davis County						
Non-Ag. Employment (thous.)	52.2r	53.5fo	2.5%	52.4	52.3	0.3%
Unemployment Rate	4.9r	4.7	-4.1%	4.5	5.4	-16.9%
Auth. Permit Construction (thous. of dol.)	9,151.4	7,442.6	-18.7%	9,266.8	12,769.4	-27.4%
New Dwelling Units (no.)	59	51	-13.6%	68	94	-27.8%
Postal Receipts (thous. of dol.)	282.0	463.3	64.3%	421.7	NA	NA
Electric Customers (Residential)	47,813	48,101	0.6%	48,063	47,185	1.9%
Electric Customers (Commercial)	3,309	3,550	7.3%	3,445	3,277	5.1%
Natural Gas Customers (Residential)	49,216	50,728	3.1%	50,273	48,704	3.2%
Natural Gas Customers (Industrial)	52	53	1.9%	53	52	1.3%
Telephone Lines in Service (Mt. Bell)(Residential)	54,511	55,872	2.5%	55,238	54,757	0.9%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	10,722	11,577	8.0%	11,265	10,510	7.2%
Salt Lake County						
Non-Ag. Employment (thous.)	339.1r	350.9fo	3.5%	338.9	332.9	1.8%
Unemployment Rate	5.1r	4.5	-11.8%	4.8	5.5	-13.7%
Auth. Permit Construction (thous. of dol.)	54,022.2	23,274.3	-56.9%	30,194.8	46,292.0	-34.8%
New Dwelling Units (no.)	152	140	-7.9%	179	251	-28.5%
Postal Receipts (thous. of dol.)	8,996.0	8,683.2	-3.5%	7,905.3	7,309.1	8.2%
Electric Customers (Residential)	237,634	241,208	1.5%	239,450	236,145	1.4%
Electric Customers (Commercial)	20,169	20,438	1.3%	20,376	19,905	2.4%
Natural Gas Customers (Residential)	215,853	220,377	2.1%	220,589	216,977	1.7%
Natural Gas Customers (Industrial)	235	238	1.3%	236	241	-2.1%
Telephone Lines in Service (Mt. Bell)(Residential)	228,513	232,007	1.5%	229,998	226,529	1.5%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	110,054	111,620	1.4%	110,900	109,746	1.1%
Utah County						
Non-Ag. Employment (thous.)	79.3r	82.9fo	4.5%	76.7	73.9	3.9%
Unemployment Rate	5.4r	4.0	-25.9%	4.5	7.1	-36.2%
Auth. Permit Construction (thous. of dol.)	8,108.8	8,401.2	3.6%	10,335.5	12,450.3	-17.0%
New Dwelling Units (no.)	77	41	-46.8%	65	93	-30.3%
Postal Receipts (thous. of dol.)	922.5	1,336.4	44.9%	1,164.8	929.0	25.4%
Electric Customers (Residential)	51,386	52,318	1.8%	52,224	51,922	0.6%
Electric Customers (Commercial)	5,856	6,055	3.4%	5,976	6,309	-5.3%
Natural Gas Customers (Residential)	60,626	61,807	1.9%	61,652	60,223	2.4%
Natural Gas Customers (Industrial)	69	71	2.9%	68	68	-0.2%
Telephone Lines in Service (Mt. Bell)(Residential)	64,250	65,906	2.6%	64,547	62,345	3.5%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	19,509	20,993	7.6%	20,040	18,521	8.2%
Weber County						
Non-Ag. Employment (thous.)	60.7r	62.5fo	3.0%	61.2	60.3	1.5%
Unemployment Rate	6.7r	6.1	-9.0%	5.9	7.1	-16.9%
Auth. Permit Construction (thous. of dol.)	6,264.8	4,426.1	-29.3%	5,646.5	8,484.6	-33.5%
New Dwelling Units (no.)	47	49	4.3%	47	69	-31.1%
Postal Receipts (thous. of dol.)	583.6	694.9	19.1%	668.9	610.2	9.6%
Electric Customers (Residential)	53,050	53,621	1.0%	53,482	52,761	1.4%
Electric Customers (Commercial)	4,877	4,876	0.0%	4,924	4,839	1.7%
Natural Gas Customers (Residential)	48,891	49,534	1.3%	49,743	48,956	1.6%
Natural Gas Customers (Industrial)	85	86	1.2%	83	85	-1.8%
Telephone Lines in Service (Mt. Bell)(Residential)	46,043	46,822	1.7%	46,432	45,929	1.1%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	11,288	12,114	7.3%	11,811	10,962	7.7%

NA Not Available r Revised fo Forecast

Sources:

Personal Income:	Bureau of Economic Analysis, U.S. Department of Commerce.
New Corporations:	Utah Secretary of State.
New Car and Truck Sales:	Utah State Tax Commission, Economic and Statistical Unit.
Agriculture:	U.S. Department of Agriculture, Agriculture, Utah: Utah Crop and Livestock Reporting Service.
Construction Data:	F.W. Dodge Statistics and Utah Construction Report, Bureau of Economic and Business Research.
Employment Data:	Utah Department of Employment Security.
Savings Information:	Utah Savings and Loan Institutions.
Tax Collections:	Utah State Tax Commission.
Net Electric Power Utilized:	Cooperating Utah Power Companies.
Crude Oil Production:	Area Oil Refineries.
Natural Gas Production:	Utah Department of Oil, Gas, and Mining.
Coal Production:	U.S. Department of Energy.
Air Passengers:	Salt Lake City International Airport, Statistics Division.
Highway Traffic Count:	Utah Department of Transportation.
Visits to State and National Parks and Monuments:	U.S. Forest Service, Utah State Parks and Recreation Department.
Utilities Data:	Cooperating Utah Utility Companies.
Postal Receipts:	Postmasters in Davis, Salt Lake, Utah and Weber Counties.

Footnotes:

1 Obtained from F.W. Dodge Statistics.
2 Obtained from Utah Construction Report.
3 Includes services by nonprofit and religious organizations.
4 Includes public schools and college institutions.

Bureau of Economic and
Business Research
University of Utah
Salt Lake City, Utah 84112
Return Postage Guaranteed
(Non-Profit Organization)

Non-Profit Org.
U.S. Postage Paid

Permit No. 1528
Salt Lake City, Utah

NATIONAL DATA

	Nov. 1987	Dec. 1987	Jan. 1988	Feb. 1988	Mar. 1988	Apr. 1988
U.S. Gross National Product (seasonally adjusted) (bil.) (qtly.)	4162.8	4299.7				
Total Personal Income (seasonally adjusted) (bil. of dol.)	3884.1	4169.2				
Industrial Production Indexes (seasonally adjusted) (1977=100)	133.2	130.0				
Total Non-Farm Bus. Expend. on New Plants & Equip. (bil.) (qtly.)	406.8	445.7				
Index of Leading Indicators (1982=100)	139.3	143.0				
Price Indexes						
Consumer Price Indexes (not seasonally adjusted) (1982-84=100)						
CPI-U (All Urban Consumers) All Items	115.4	120.3				
CPI-U (All Urban Consumers) Food & Beverages	114.3	120.2				
CPI-U (All Urban Consumers) Housing	115.5	119.9				
CPI-U (All Urban Consumers) Transportation	107.8	110.7				
CPI-U (All Urban Consumers) Medical Care	132.8	141.6				
CPI-U (All Urban Consumers) Energy	90.0	96.0				
Producer Price Index (not seasonally adjusted) (1982=100)						
Producer Price Index, All Finished Goods	106.3	109.7				
GNP Price Deflator (1982=100) (qtly.)	118.9	124.0				
Civilian Employment (seasonally adjusted)						
Total Civilian Labor Force (mil.)	120.5	122				
Total Civilian Employment (mil.)	113.5	114.9				
Unemployment Rate	5.9	5.4				
Construction						
Total Construction (mil. of dol.)	19,962.6	19,941.2				
Residential	8,431.7	9,439.6				
Nonresidential	7,281.8	6,501.6				
Non-Building	2,949.1	3,999.7				
New Dwelling Units (no.)	107,970	107,700				
Interest Rates						
Short Term (3-month Treasury bill rate)	5.61	7.06				
Long Term (30-year Treasury bond yields)	8.90	9.01				
Prime Rates Charged by Banks on Short-term Business Loans (avg.)	8.78	10.03				
Mortgage Rates (new homes)	8.92	10.00				

Sources: Business Conditions Digest, U.S. Department of Commerce: U.S. Gross National Product, Total National Personal Income, Industrial Production Indexes, Total Business Expenditures for New Plant Equipment, Index of Leading Indicators, GNP Price Deflator, National Employment Data, Interest Rates.

F.W. Dodge Report, McGraw-Hill: National Construction Data.

Survey of Current Business, U.S. Department of Commerce: New Home Mortgage Rates.

Utah Labor Market Report, Utah Department of Employment Security: Consumer Price Indexes, Producer Price Index.

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